

MASS. EA 10.102: IN3/1998-2007



Massachusetts
Department
of
ENVIRONMENTAL
PROTECTION


INDICATIVE PROJECT SUMMARIES

SECTION 604B WATER QUALITY MANAGEMENT PLANNING PROGRAM

FFY 1998-2007

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
Glenn Haas, Acting Assistant Commissioner

2007



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MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

**SECTION 604B WATER QUALITY MANAGEMENT PLANNING PROGRAM
INDICATIVE PROJECT SUMMARIES**

FFY 1998-2007

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2007

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Introduction

This report presents brief summaries of the forty-one (41) projects funded under section 604(b) of the Clean Water Act in State fiscal years 1998 to 2007. The focus of these projects is watershed or subwatershed based nonpoint source assessment activities that support work planned by the Department of Environmental Protection in priority basins, the Department's TMDL development efforts, the Department's Massachusetts Estuaries Program, water supply source protection planning projects, activities identified in EOEEA's watershed action plans, or other suitable water quality assessment/planning projects identified by regional planning agencies or local communities.

Priority basins and projects are selected each year to support DEP's five-year basin cycle assessment and planning needs and the goals outlined in the EOEEA's watershed action plans.

Since 1998, the Department has funded projects totaling \$1,854,616 in 21 of the Commonwealth's watersheds (see Table 1 below). Activities performed include: assessment of nonpoint source pollution in urban and rural watersheds, collection of water quality data from Massachusetts estuaries and coastal ponds, nutrient loading to coastal ponds, estuarine and freshwater shoreline surveys, assessment of stormwater management systems, assessments of unpaved rural roads, and priority land acquisition identification and planning.

This report also provides a complete listing of all 604(b) projects conducted since 1991 by fiscal year and watershed in appendix Tables A and B. Summaries of these earlier projects can be found in a companion document "Section 604(b) Water Quality Management Planning Program, Indicative Project Summaries, 1991 to 1997" by L.K. O'Shea, et. al. 1997 which is available on the Department's web site.

Copies of the final reports for selected projects are available on CD upon request from DWM in Worcester.

Table 1
Massachusetts Department Of Environmental Protection
Number of 604(b) Projects and Allocation of Grant Funds by Basin (1998-2007)

<u>Basin Name</u>	<u>Number of Projects</u>	<u>Dollars Allocated</u>
Blackstone	1	\$ 49,789
Boston Harbor (Mystic, Neponset, Weymouth & Weir)	1	\$ 67,749
Cape Cod	8	\$ 296,645
Chicopee	1	\$ 45,400
Concord (Sudbury Assabet Concord)	1	\$ 49,000
Connecticut	3	\$ 164,400
Deerfield	1	\$ 87,700
Farmington	1	\$ 49,200
French & Quinebaug	1	\$ 29,810
Housatonic	1	\$ 44,955
Hudson (Hoosic, Kinderhook, BashBish)	1	\$ 64,017
Islands	7	\$ 195,836
Merrimack	1	\$ 46,350
Millers	1	\$ 57,500
Narragansett Bay & Mount Hope Bay	5	\$ 285,425
Nashua	1	\$ 33,300
North Coastal	1	\$ 33,700
Parker	1	\$ 54,930
South Coastal	1	\$ 76,410
Taunton	1	\$ 82,000
Ten Mile	1	\$ 40,500
Total	41	\$1,854,616

Note: Dollar amounts shown are federal grant funds and do not include non-federal matching funds.

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 98-01/604

Project Title: Urban Watershed Management in the Mystic River Basin

Investigator: Metropolitan Area Planning Council

Location: Boston Harbor (Mystic) Watershed

Description: The project will provide recommendations for reducing pollutant runoff into Spy Pond based on a detailed analysis of land cover in watershed. Baseline water quality information, data gaps, and nonpoint source pollution issues will be identified in the Horn Pond watershed. Dry and wet weather water quality sampling will be conducted in Horn Pond watershed. A detailed assessment of the drainage area that contributes runoff for the one large stormwater outfall in Horn Pond will be conducted. Recommendations will be provided to improve stormwater management in the Horn Pond watershed including opportunities for stormwater remediation and future grant funding.

Cost: \$49,820

Funding: \$42,343 - U.S. Environmental Protection Agency
\$ 7,477 - Metropolitan Area Planning Council

Duration: 1998 - 2002 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 98-02/604

Project Title: Parker River Basin: Assessment and Management of Nonpoint Source Pollution in the Little River Subwatershed

Investigator: Merrimack Valley Planning Commission

Location: Parker River Watershed

Description: This project will comprehensively inventory, map, and assess nonpoint sources of pollution in the Little River subwatershed of the Parker River Basin. To accomplish this, the following tasks will be performed:

- 1) production of parcel-based GIS maps and databases of land use and nonpoint pollution sources through research of local and state records, and intensive field surveys;
- 2) water quality sampling to identify fecal coliform bacteria sources and loadings in the Little River mainstem and tributaries;
- 3) review and evaluation of local nonpoint source control measures; and
- 4) development of management recommendations for enhancing Little River water quality.

Cost: \$62,420

Funding: \$54,930 - U.S. Environmental Protection Agency
\$ 7,500 - Merrimack Valley Planning Commission

Duration: 1998 - 2001 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 98-03/604

Project Title: Upper Blackstone River Watershed Wetlands Restoration Plan

Investigator: Worcester County Conservation District

Location: Upper Blackstone River Watershed

Description: The project involves preparation of an upper Blackstone River Watershed Wetlands Restoration Plan that complies with the technical and planning criteria of the Massachusetts Wetlands Restoration & Banking Program. This includes: updating wetlands map data; identifying, characterizing and mapping potential wetlands restoration sites; establishing a digital wetlands database; evaluating how wetlands restoration can help improve the watershed in terms of water quality, flood storage, fish habitat, and wildlife habitat. The project will be carried out by the Worcester County Conservation District in cooperation with the Wetland Restoration and Banking Program.

Cost: \$69,489

Funding: \$49,789 - U.S. Environmental Protection Agency
\$19,700 - Wetland Restoration and Banking Program

Duration: 1998 - 2003 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 98-04/604

Project Title: Assessment of Current Quality and Projected Nutrient Loading: Menemsha Pond and Chilmark Great Pond.

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will assess the water quality and determine the nutrient loading limits for Menemsha Pond and Chilmark Great Pond. To accomplish this, the Martha's Vineyard Commission will:

- 1) determine sources of bacterial contamination and assess nutrient status in Chilmark Great Pond using both existing and new water quality data;
- 2) determine nitrogen loading to Chilmark Great Pond and Menemsha Pond;
- 3) determine flushing time and estimate nitrogen loading limit for Chilmark Great Pond and Menemsha Pond;
- 4) project buildout loading and assess impact on Ponds; and
- 5) recommend options to reduce nitrogen loads (as needed) by bylaw revisions, easement acquisitions, and pond opening cycles.

Cost: \$45,415

Funding: \$37,670 - U.S. Environmental Protection Agency
\$ 7,745 - Martha's Vineyard Commission

Duration: 1998 - 2001 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 99-01/604

Project Title: Priority Land Acquisition Assessment for Cape Cod: Phase 2

Investigator: Cape Cod Commission

Location: Cape Cod Watershed

Description: This project is the second phase of a priority land-rating project initiated under a previous 604b grant. This phase of the project will provide guidance to eleven Cape Cod towns towards securing new land for water supply. Project tasks will include providing detailed GIS maps of the most suitable parcels for potential acquisition. These GIS maps will provide surficial topography and depth to water table information. A detailed analysis of relevant water development factors including funding options, groundwater protection measures, withdrawal permitting issues, and identification of local concerns affecting site selection will be prepared for each recommended site. A series of Public meetings will be conducted to distribute project information.

Cost: \$49,900

Funding: \$49,900 - U.S. Environmental Protection Agency

Duration: 1999 - 2001 (Project Complete)

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES

SECTION 604b PROJECT 99-02/604

Project Title: Nutrient Loading to Two Great Ponds: Tisbury Great Pond and Lagoon Pond

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: Martha's Vineyard Commission will assess water quality in both Tisbury Great Pond and Lagoon Pond using existing water quality data and by acquiring new data. Groundwater watershed contribution boundaries, flushing times, existing and potential land uses, buildout nutrient loads, and acceptable load limits will be determined for each pond. Options to meet loading limits including land purchase, easements, zoning changes, performance standards, and sewage treatment options will be prepared for both ponds.

Cost: \$52,000

Funding: \$50,000 - U.S. Environmental Protection Agency
\$ 2,000 - Martha's Vineyard Commission

Duration: 1999 - 2001 (Project Complete)

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES

SECTION 604b PROJECT 99-03/604

Project Title: Cape Cod Coastal Nitrogen Loading Studies

Investigator: Cape Cod Commission

Location: Cape Cod Watershed

Description: The Cape Cod Commission will complete the nitrogen loading assessments for three embayments – Centerville River, Nauset Marsh and Town Cove, and Herring River systems initiated under previous grants. Development of nitrogen limits/TMDLs, determination of nitrogen loads, and recommendations for potential pollution controls will be prepared. In addition, recent water quality and revised tidal flushing in the Popponesset Bay system, including the Mashpee River, will be used to produce nitrogen management options for this system.

Cost: \$45,000

Funding: \$45,000 - U.S. Environmental Protection Agency

Duration: 1999 - 2002 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 99-04/604

Project Title: Chicopee River Watershed Basin Assessment

Investigator: Pioneer Valley Planning Commission

Location: Chicopee River Watershed

Description: This project will address watershed assessment needs in the communities of Chicopee, Ludlow, Springfield, and Wilbraham that fall within the Chicopee River Basin. Stormwater infrastructure components will be identified, compiled into a database, and mapped; existing BMPs will be mapped and recommendations for future BMP implementation will be generated; existing water quality data will be compiled into a comprehensive database and analyzed to determine data gaps and to recommend future sampling efforts; and local water quality protection ordinances and bylaws will be reviewed and draft water protection bylaws prepared for communities within the study area.

Cost: \$45,400

Funding: \$45,400 - U.S. Environmental Protection Agency

Duration: 2000 - 2002 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2000-01/604

Project Title: Surface Water Nutrient Management (Long Pond, Barnstable, and Red Brook Harbor)

Investigator: Cape Cod Commission

Location: Cape Cod Watershed

Description: This project will address two Massachusetts Watershed Initiative Priority Projects: 1) Long Pond; and 2) Barnstable and Red Brook Harbor. Nitrogen loading and management options will be prepared for the Barnstable Harbor and Red Brook Harbor Coastal embayment systems. This includes watershed delineations, critical nitrogen loads, existing and buildout nitrogen loads, comparison of nitrogen loads to nitrogen limits, and developing management options. For Long Pond, data needs will be identified and if necessary additional data collected (a QAPP will be prepared if necessary), an Advisory Committee will be established, nutrient management options will be prepared, and a preferred set of options recommended.

Cost: \$46,400

Funding: \$46,400 - U.S. Environmental Protection Agency

Duration: 2000 - 2002 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2000-02

Project Title:	Runnins River Watershed Bacterial and Nutrient Source Assessment and Water Quality Management Project
Investigator:	Town of Seekonk
Location:	Narragansett Watershed
Description:	<p>This project will focus on the assessment of water quality along the Runnins River and will identify significant sources of bacterial pollution to sections of the Runnins River and two tributaries with known water quality problems. Recommended management actions and conceptual designs for remedial measures will be provided.</p> <p>Specific tasks to be conducted include:</p> <ol style="list-style-type: none">1) Existing data compilation and subwatershed reconnaissance. Property ownership, zoning, site plans for large impervious areas, septic system location, existing planning/management reports (e.g. catch basin cleaning and street sweeping frequency), and water quality data reports/information will be compiled and summarized;2) Develop an EPA/DEP approved Quality Assurance Project Plan (QAPP);3) Conduct field sampling and analysis. Sampling will include wet and dry weather work plus groundwater sampling for fecal coliform and nutrients;4) Prepare conceptual designs for remedial measures; and5) Prepare draft and final reports and conduct public presentation of final results.
Cost:	\$44,700
Funding:	\$40,500 - U.S. Environmental Protection Agency \$ 4,400 - Town of Seekonk
Duration:	2001 – 2004 (Project Complete)

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES

SECTION 604b PROJECT 2000-03/604

Project Title: Millers River Watershed Nonpoint Source Pollution Assessment

Investigator: Montachusett Regional Planning Commission

Location: Millers River Watershed

Description: Montachusett Regional Planning Commission and Franklin Regional Council of Governments will team up to create a solid information base to guide future governmental and private actions in reducing nonpoint source pollution and improve the water quality in the Millers River. MASS GIS data layers, state reports, community input, and fieldwork will be employed to identify potential nonpoint source pollution. An action plan incorporating Watershed Basin Team and Watershed Council goals will be created.

Cost: \$57,500

Funding: \$57,500 - U.S. Environmental Protection Agency

Duration: 2000 - 2002 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2000-04

Project Title: Lake Cochituate Nonpoint Source Management Plan

Investigator: Metropolitan Area Planning Council

Location: Concord (Sudbury Assabet Concord) Watershed

Description: This project will characterize and prioritize nonpoint source pollution problems in the Lake Cochituate watershed.

Tasks to be completed include:

- 1) conduct a watershed wide inventory, mapping, and assessment of land use activities and nonpoint sources;
- 2) conduct a detailed nonpoint source assessment and stormwater mapping in selected subbasins;
- 3) assess local water quality protection measures;
- 4) provide recommendations to communities for improved management of nonpoint source pollution within the watershed;
- 5) conduct a workshop to provide outreach and technical assistance; and
- 6) develop and distribute a public information brochure on preventing nonpoint source pollution in the watershed.

Cost: \$53,900

Funding: \$49,000 - U.S. Environmental Protection Agency
\$ 4,900 - MAPC

Duration: 2001 - 2003 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2001-01

Project Title: Assessment of Unpaved Roadways in the Farmington River Watershed

Investigator: Berkshire Regional Planning Commission & Pioneer Valley Planning Commission

Location: Farmington River Watershed

Description: This project will assess unpaved roads in the Massachusetts portion of the Farmington River watershed. Assessment and planning activities, using the Roadway Surface Management System (RSMS) will identify potential environmentally degrading unpaved roadway maintenance and management practices that contribute to nonpoint source pollution. The project will address remediation of existing roadway problems, set goals for prevention of potential NPS problems, and develop proactive strategies for management and maintenance of unpaved roads.

Specific tasks to be conducted include:

- 1) unpaved road assessment training. Representatives from BRPC, PVPC, and from each participating town's DPW will receive RSMS training;
- 2) inventory and map unpaved roads;
- 3) map priority resource areas;
- 4) conduct unpaved roads condition assessment;
- 5) develop a customized RSMS database for each Town;
- 6) develop an unpaved roads assessment report for each Town;
- 7) conduct planning sessions with local municipal officials; and
- 8) prepare draft and final project reports.

Cost: \$54,200

Funding: \$49,200 - U.S. Environmental Protection Agency
\$ 5,000 - BRPC

Duration: 2001 - 2003 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2001-02

Project Title: Assessment of Stormwater Management System

Investigator: City of Easthampton

Location: Connecticut River Watershed

Description: City of Easthampton will conduct an assessment of its stormwater management system and procedures as part of the City's efforts to meet the Phase II Stormwater Management requirements.

The City of Easthampton will:

- 1) create an information database and GIS maps depicting locations of stormwater management infrastructure;
- 2) identify and describe specific stormwater management shortcomings and provide specific BMP recommendations to address the identified problems; and
- 3) prepare a framework for the City's Phase II stormwater application including developing recommendations for meeting the six minimum Phase II Stormwater control measures that are required by the U.S. EPA.

Cost: \$48,200

Funding: \$48,200 - U.S. Environmental Protection Agency

Duration: 2001 - 2003 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2001-03

Project Title: Assessment of Land Use Activities, Nonpoint Source Pollution, and Water Quality in the Taunton River Watershed

Investigator: Southeastern Regional Planning and Economic Development District

Location: Taunton River Watershed

Description: This project will assess land use activities and identify nonpoint source (NPS) pollution areas for a minimum of six subwatersheds in the Taunton River basin. Local water quality protection measures will be assessed and subwatershed action plans developed to address identified nonpoint source pollution problems.

Specific project tasks include:

- 1) acquire, update, and develop GIS data for various physical, institutional, and natural features of the watershed;
- 2) create a land suitability map to illustrate general environmental constraints to development in the watershed;
- 3) update existing MassGIS information on the type, intensity and distribution of existing land uses in six subwatersheds;
- 4) identify and assess potential and existing sources of pollution through extensive field verification and model estimates of nutrient base loading;
- 5) assess local water quality protection measures; and
- 6) provide recommendations to address existing and potential NPS pollution problems in the watershed.

Cost: \$82,000

Funding: \$82,000 - U.S. Environmental Protection Agency

Duration: 2001 – 2003 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2002-01

Project Title: Shoreline Survey of Salem Sound

Investigator: City of Beverly, Board of Health

Location: North Coastal Watershed

Description: The Shoreline Survey of Salem Sound project will provide updated information on chronic bacteria pollution sources to coastal bathing beaches and shellfish beds. The survey will provide information to support remediation of 303d listed waters, Phase II stormwater management, and new swimming-beach water quality regulations. The Shoreline Survey project will update a 1993 shoreline survey to reflect numerous remedial actions, flood control projects, and sewer line repairs made in the last nine years and to identify remaining and new sources for remediation; provide supporting data to Division of Marine Fisheries to conduct a complete sanitary survey with the goal of opening shellfish beds; and assist local municipalities with both the Federal Beaches Act and Phase II stormwater permitting.

Project tasks to be completed include:

- 1) review 1993 shoreline survey and compile information from DPWs and South Salem Sewage District to determine locations of active pipes, and changes or improvements made over the last ten years;
- 2) develop a QAPP for standard survey and water quality data collection;
- 3) conduct shoreline survey of Salem Sound coastline to identify, at a minimum, all outfalls 12" diameter and larger within ¼ mile of swimming beaches or shellfish resource area;
- 4) collect water quality samples from dry weather flows at prioritized locations and analyze samples for bacteria;
- 5) produce GIS maps of all active outfalls, sources, swimming beaches, and shellfish resource areas; and
- 6) distribute survey results to municipalities at meetings and in a final report.

Cost: \$49,600

Funding: \$33,700 - U.S. Environmental Protection Agency
\$15,900 - City of Beverly

Duration: 2002 – 2004 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2002-02

Project Title: Stormwater Management Assessment Project

Investigator: Town of Adams

Location: Hudson River Watershed

Description: The Town of Adams will conduct a comprehensive assessment of the stormwater management system, stormwater management practices, and development of review and management measures. This assessment will identify specific locations or discharges contributing to stormwater problems, identify needed improvements Adams's stormwater management practices, and identify improvements to Adams' development control measures. A comprehensive stormwater management plan will be prepared by the town with the goal of improving water quality in the Hoosic River and removal of specific segments of the Hoosic River from the 303d list of impaired waters.

Specific tasks to be conducted include:

- 1) identify, map, and evaluate Adams' stormwater management system in the urbanized area to provide a map of the existing storm drainage infrastructure, illicit discharges, and other problem areas;
- 2) conduct an assessment of the stream network to identify specific stormwater related problems;
- 3) prepare a QAPP and conduct a water quality monitoring program to identify "hot" spots;
- 4) prepare conceptual remediation designs and strategies for stormwater problem areas;
- 5) assess and evaluate existing stormwater management practices;
- 6) assess and evaluate development control measures including bylaws, regulations, and administrative procedures;
- 7) evaluate the capacity of local board members and personnel to implement stormwater management program; and
- 8) prepare a stormwater management plan and framework that addresses improvements and enhancements to the Town's stormwater management practices and infrastructure.

Cost: \$76,355

Funding: \$64,017 - U.S. Environmental Protection Agency
\$12,338 - Town of Adams

Duration: 2002 – 2004 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2002-03

Project Title: Assessment of Stormwater Management Systems and Nonpoint Source Pollution

Investigator: Town of Swansea

Location: Narragansett/Mt. Hope Bay Watershed

Description: This project will assess the stormwater management system for the Town of Swansea and create a Stormwater Management Plan per EPA NPDES Phase II Stormwater program including identification and mapping of the Stormwater infrastructure. Nonpoint source pollution at Compton's Corners estuary will be investigated including water quality testing at identified drainage structure locations. The Stormwater Management Plan will include: locations and current status of stormwater management infrastructure, methodology for detecting illicit discharges, location and general character of illegal and illicit discharges, location and general character of nonpoint source and point sources of pollution, bacteria test data from water quality samples, review existing bylaws and ordinances, and draft recommendations and an action plan to address Phase II minimum requirements.

Project tasks include:

- 1) identification, mapping, and field inspections of the stormwater infrastructure including the creation of a GIS stormwater infrastructure database;
- 2) prepare a QAPP for water quality and dye testing in the Compton's Corners area;
- 3) map potential nonpoint source pollution sites including large impervious areas, industrial areas, areas prone to flooding, and new or redevelopment construction sites;
- 4) conduct a water quality and dye-testing program to identify sources of contamination and nonpoint source pollution; and
- 5) develop a Stormwater Management Plan that will address the six required Phase II stormwater elements and recommended remediation actions for identified nonpoint source pollution sources.

Cost: \$84,060

Funding: \$34,060 - U.S. Environmental Protection Agency
\$50,000 - Town of Swansea

Duration: 2002 – 2004 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2002-04

Project Title: Stormwater Education Assessment and Planning

Investigator: Town of Plainville

Location: Ten Mile River Watershed

Description: This project will support nonpoint source pollution prevention activities in the watershed through an education program that will: create a watershed stormwater education committee; assess existing local educational resources and identify future educational needs regarding stormwater pollution and management; develop a five-year stormwater education and outreach plan for all watershed municipalities; and develop educational materials and resources to support implementation of the plan.

Specific project tasks include:

- 1) assessment of stormwater education resources and needs including the formation of a stormwater education committee;
- 2) develop and implement a five-year stormwater education and outreach plan including a summary of current stormwater education resources, an outline of specific education needs, and recommendations to meet those needs;
- 3) develop stormwater education resources and materials including materials for public distribution and display including pamphlets and brochures, hands-on materials appropriate for local schools, and develop and maintain a website for obtaining stormwater management information to be shared by local municipalities.

Cost: \$43,025

Funding: \$36,025 - U.S. Environmental Protection Agency
\$ 7,000 - Town of Plainville

Duration: 2002 – 2004 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2002-05

Project Title: East Branch Housatonic Watershed Assessment

Investigator: Berkshire Regional Planning Commission

Location: Housatonic River Watershed

Description: This project will assess the extent of known and suspected nonpoint source pollution problems in the East Branch subwatershed of the Housatonic River. Berkshire Regional Planning Commission (BRPC) and Housatonic Valley Association will conduct targeted water quality sampling of suspected problem areas and will pilot an effort to include volunteer water quality monitoring into a municipal stormwater management plan. Additional efforts, if needed, will be directed towards waters on the 303d list. BRPC will assist the two communities in the subwatershed in meeting their stormwater management goals and will recommend remediation of identified erosion and sedimentation problems in two surface water supply watersheds.

Specific project tasks include:

- 1) Develop a QAPP and conduct a water quality sampling program;
- 2) Conduct a pilot sampling program to detect illicit discharges;
- 3) Conduct an unpaved road runoff and erosion assessment in two surface water supply subwatersheds;
- 4) Compile existing and collect new data to remove selected waters from the 303d list of impaired waters;
- 5) Conduct an assessment of outreach, regulatory, and policy needs for NPDES Phase II communities and prepare a draft Stormwater Management Program for these towns.

Cost: \$44,955

Funding: \$44,955 - U.S. Environmental Protection Agency

Duration: 2002 – 2004 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2003-01

Project Title: Martha's Vineyard: Water Quality Assessment of Nine Coastal Ponds

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will obtain the additional water quality data from nine coastal salt ponds in support of the Massachusetts Estuaries Project. The nine coastal ponds on Martha's Vineyard that will be sampled are: Sengekontacket, Cape Pogue, Poucha, Tashmoo, Oak Bluffs Harbor, Farm, Menemsha, Chilmark, and Squibnocket. Water quality samples will be collected from forty-six stations during four sampling rounds from late July through mid September. Data will be incorporated into a final report and published on a web site.

Specific project tasks include:

- 1) update existing Quality Assurance Project Plan (QAPP) to reflect changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling;
- 2) identify and conduct field reconnaissance of up to forty-six sample station locations to collect GPS data and subsequently prepare a GIS map of the sample collection sites;
- 3) conduct four sample collection rounds at forty-six stations and analyze the water quality samples in accordance with the updated QAPP. Water quality data will be summarized by pond and sampling round and provided in spreadsheet format;
- 4) prepare GIS based data maps showing station locations, pond system physical location, and other water quality data collected. The resource information for each pond surveyed will be presented in a "clickable" format on web-ready maps and posted on the MVC's web site; and
- 5) prepare complete water quality assessment report.

Cost: \$45,424

Funding: \$35,124 - U.S. Environmental Protection Agency
\$10,300 - Martha's Vineyard Commission

Duration: 2003 – 2005 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2003-02

Project Title: An Ecosystem Approach to the Sawmill River Watershed Restoration

Investigator: Franklin Conservation District

Location: Connecticut River Watershed

Description: This project will provide a three-phase geomorphic approach for the lower portion of the Sawmill River Watershed. The assessments will use a state-of-the-art model to inventory and analyze river ecosystem health indicators. The project will use natural stream channel principles based on the river's ecosystem to design conceptual solutions for flooding, sedimentation, and erosion problems. The project will also offer a methodology for replication in other Massachusetts watersheds.

Specific tasks to be completed are:

- 1) review existing data prepared for the project to-date including NRCS Phase I and Phase II assessments and existing engineering data.
- 2) perform a Stream Geomorphic Assessment of the river to identify areas of concern including determination of bank full features, width of flood prone area, cross sections for stream typing, pebble counts and determining planform geometry.
- 3) perform cross section surveys and longitudinal profiles of selected reaches. Incorporate additional stream cross section data into hydrology study;
- 4) perform hydrology study using NRCS and Army Corps of Engineers computer models (TR 20 and HEC RAS, respectively);
- 5) prepare conceptual restoration design alternatives using project data and natural channel design principles; and
- 6) prepare and disseminate final project report.

Cost: \$100,820

Funding: \$54,500 - U.S. Environmental Protection Agency
\$46,320 - Franklin Conservation District

Duration: 2003 – 2005 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2003-03

Project Title: Water Quality Monitoring: Parker's River, Lewis Bay, and Bass River

Investigator: Town of Yarmouth

Location: Cape Cod Watershed

Description: The Town of Yarmouth will conduct water quality sampling in the Parker's River, Lewis Bay, and Bass River sub-watersheds in support of the Massachusetts Estuaries Project. The sampling will produce data essential to the subsequent assessments of each ecosystem including the development of TMDLs and local watershed management plans. Data collected will be consistent with Massachusetts Estuaries Project criteria and consistent with Cape Cod Watershed Team Action Plan, the Cape Cod Commission's Regional Policy Plan, and the Town's Local Comprehensive Plan. Sampling efforts will directly involve local citizens from Yarmouth, Dennis, and Barnstable.

Specific tasks to be completed include:

- 1) prepare a Sampling and Analysis Plan (SAP) for the monitoring and assessment work;
- 2) recruit and train volunteer sampling teams;
- 3) collect and analyze water quality samples from sub-watershed sampling stations in accordance with approved SAP. Additional observations and measurements of macroalgae biomass and distribution, eelgrass biomass and distribution, sediment type, wind speed and direction, and air temperature will be collected from selected sampling stations in accordance with the approved SAP; and
- 4) prepare final project report including a summary and analysis of all data collected by sub-watershed and sampling round.

Cost: \$62,963

Funding: \$44,975 - U.S. Environmental Protection Agency
\$17,988 - Town of Yarmouth

Duration: 2003 – 2005 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2003-04

Project Title: Estuaries Monitoring Program: Duxbury, Kingston, and Plymouth Coastal Waters

Investigator: Town of Kingston

Location: South Coastal Watershed

Description: This project will provide water quality and flow data to support the Massachusetts Estuaries Program assessment of Duxbury, Kingston, and Plymouth coastal waters including: Duxbury Harbor, Jones River, Kingston Bay, Plymouth Harbor, Ellisville Harbor, Eel River, and Town Brook. The project will establish a water quality database for the Town's coastal waters that will be used for the future development of TMDLs and nutrient management.

Tasks to be completed include:

- 1) completion of a Sampling and Analysis Plan (SAP) for the collection and analysis of water quality and flow data in the project area;
- 2) establish fresh and salt water monitoring locations for water quality and flow measurements. Descriptions and GPS data will be provided for each sampling site;
- 3) recruit and train volunteer sampling teams for each sub-watershed;
- 4) collect and analyze water quality and flow data from sub-watershed sampling sites in accordance with DEP approved SAP; and
- 5) prepare final project report including a summary and analysis of all data collected by subwatershed and sampling round.

Cost: \$85,240

Funding: \$76,410 - U.S. Environmental Protection Agency
\$ 8,830 - Town of Kingston

Duration: 2003 – 2005 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2004-01

Project Title: Martha's Vineyard: Water Quality Assessment of Four Coastal Ponds

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will obtain water quality data to prepare four coastal salt ponds (Farm Pond, Tashmoo Pond, Sengekontacket Pond, and Chilmark Pond) for entry into the Massachusetts Estuaries Project (MEP), enhance the dataset for two other salt ponds (Cape Pogue and Poucha Pond), and collect additional water quality data for Lagoon Pond which has already entered MEP. Water quality samples will be collected from thirty-one stations during four sampling rounds from late July through mid September. Data will be incorporated into a final report and added to the MVC's web site.

Specific project tasks include:

- 1) update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling;
- 2) conduct four sample collection rounds at thirty-one stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by pond and sampling round, and provided in spreadsheet format;
- 3) prepare GIS based data maps showing station locations, pond system physical location, and other water quality data collected. The resource information for each pond surveyed will be presented on maps and posted on MVC's web site; and
- 4) prepare quarterly progress reports and a final water quality assessment report.

Cost: \$18,012

Funding: \$11,412 - U.S. Environmental Protection Agency
\$ 6,600 - Martha's Vineyard Commission

Duration: 2004 – 2006 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2004-02

Project Title: A Subwatershed Approach to Nonpoint Source Pollution Assessment in the Deerfield River Watershed

Investigator: Franklin Regional Council of Governments

Location: Deerfield River Watershed

Description: This project will assess land use activities, identify and field-verify potential nonpoint sources of pollution for six subwatersheds (South, North, Green, Chickley, and River corridor segments 1 and 2) with impaired river segments within the Deerfield River Watershed, and create Watershed-Based Plans following EPA guidance to reduce nonpoint source pollution for these subwatersheds. The Franklin Regional Council of Governments (FRCOG) will partner with the Deerfield River Watershed Association (DRWA), the Berkshire Regional Planning Commission, and the MA Department of Fish and Game's Riverways/Adopt-A-Stream program to conduct the Deerfield River Watershed assessment project.

Specific project tasks include:

- 1) organize Stream Teams and conduct Shoreline Surveys in the Chickley River, South River, and North River sub-watersheds;
- 2) convene Advisory Committees for four targeted sub-watersheds and conduct an outreach program;
- 3) using MassGIS data layers and recent GIS mapping previously developed by the Contractor, prepare GIS theme maps of various physical, institutional, and natural features of the watershed including new development areas;
- 4) inventory existing and potential sources of nonpoint pollution in six sub-watersheds;
- 5) conduct a Rural Road Assessment for the Chickley River sub-watershed;
- 6) prepare a Quality Assurance Project Plan (QAPP) and conduct water quality sampling for *E. coli* in three sub-watersheds;
- 7) incorporate assembled data into a Watershed-Based Plan following EPA guidance;
- 8) provide site-specific nonpoint source management recommendations on a sub-watershed basis; and
- 9) prepare quarterly and final project reports.

Cost: \$114,455

Funding: \$87,700 - U.S. Environmental Protection Agency
\$26,755 - Franklin Regional Council of Governments

Duration: 2004 - 2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2004-03

Project Title: Simulation of Soluble Waste Transport: Estuarine Reach of the Merrimack

Investigator: Merrimack Valley Planning Commission

Location: Merrimack River Watershed

Description: The project will conduct a dye tracer study to track the movement and dispersion of a solute in the Newburyport tidal basin of the lower Merrimack River. The tracer test will measure speed, dispersion, and resident time of a tagged water parcel as it passes through the estuarine network. This sampling will be tied to an existing tracer study to be conducted from Lawrence to the Rt. 1 Bridge in Newburyport by the USGS.

Specific tasks include:

- 1) coordinate project activities with USGS and other State and Local Agencies participating in the study. This will include planning for crews and equipment needed to collect the data according to USGS sampling protocols. The USGS sampling protocols shall establish specific sampling locations, times, and procedures;
- 2) collect water quality samples at pre-determined times and locations to document the passage of a dye tracer tagged parcel of water. All samples will be analyzed for final dye concentrations;
- 3) analyze dye tracer concentrations to simulate build up concentrations at each sampling location and to determine flushing (residence) time for the tidal basin; and
- 4) prepare quarterly reports and a final investigative report to document study findings.

Cost: \$56,350

Funding: \$46,350 - U.S. Environmental Protection Agency
\$10,000 - U.S Geological Survey

Duration: 2004 – 2006 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2004-04

Project Title: Mount Hope Bay: Estuaries Water Quality Monitoring

Investigator: Southeastern Regional Planning and Economic Development District

Location: Mount Hope Bay Watershed

Description: This project will initiate water quality sampling in Mount Hope Bay including fresh, estuarine, and marine waters. This project will provide water quality and flow data to support the Massachusetts Estuaries Program assessment of coastal waters including: Mt. Hope Bay, Taunton River, Three Mile River, Segreganset River, Assonet River, and Quequechan River. Principle objectives will be to collect baseline data at established points, promote community involvement and awareness of water quality issues within the estuary.

Tasks to be completed include:

- 1) completion of a Sampling and Analysis Plan (SAP) for the collection and analysis of water quality and flow data in the project area;
- 2) establish fresh and salt water monitoring locations for water quality and flow measurements. Descriptions and GPS data will be provided for each sampling site;
- 3) recruit and train volunteer sampling teams for in-bay and fresh water sampling locations;
- 4) collect and analyze water quality and flow data from in-bay and fresh water sampling sites in accordance with approved SAP;
- 5) conduct a Workshop to increase community awareness of water quality issues; and
- 6) prepare final project report including a summary and analysis of all data collected by subwatershed and sampling round.

Cost: \$ 81,000

Funding: \$ 81,000 - U.S. Environmental Protection Agency

Duration: 2004 - 2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2005-01

Project Title: Continuation of Water Quality Monitoring – Parker’s & Bass River, Lewis Bay

Investigator: Town of Yarmouth

Location: Cape Cod Watershed

Description: The Town of Yarmouth will continue to conduct water quality sampling in the Parker’s River, Lewis Bay, and Bass River sub-watersheds in support of the Massachusetts Estuaries Project. The sampling will produce data essential to the subsequent assessments of each ecosystem including the development of TMDLs and local watershed management plans. Data collected will be consistent with Massachusetts Estuaries Project criteria and consistent with Cape Cod Watershed Team Action Plan, the Cape Cod Commission’s Regional Policy Plan, and the Town’s Local Comprehensive Plan. Sampling efforts will directly involve local citizens from Yarmouth, Dennis, and Barnstable.

Specific tasks to be completed include:

- 1) Revise a Sampling and Analysis Plan (SAP) as needed for monitoring and assessment work including collection and analysis of TSS samples from open-water sites;
- 2) Continue to recruit, train and support volunteer sampling teams;
- 3) Collect and analyze water quality samples from sub-watershed sampling stations in accordance with approved and/or revised SAP. Additional observations and measurements of total suspended solids (TSS), macroalgae biomass and distribution, eelgrass biomass and distribution, sediment type, wind speed and direction, and air temperature will be collected from selected sampling stations in accordance with the approved QAPP; and
- 4) Prepare final project report including a summary and analysis of all data collected by sub-watershed and sampling round.

Cost: \$28,670

Funding: \$20,140 – U.S. Environmental Protection Agency
\$ 8,530 – Town of Yarmouth

Duration: 2005 - 2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2005-02

Project Title: Martha's Vineyard Coastal Pond Water Quality Assessment – Phase III

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will obtain water quality data to prepare six coastal salt ponds for entry into the Massachusetts Estuaries Project (MEP). First year data will be collected for Katama Bay Pond and James Pond; second year data for Oyster Pond; and complete the dataset for Cape Pogue, Poucha Pond, and Farm Pond. MVC will collect additional water quality data for Tashmoo Pond and Sengekontacket Pond that have already entered MEP. Water quality samples will be collected from forty-two stations during four sampling rounds from late July through mid September. Data will be incorporated into a final report and added to the MVC's web site.

Specific project tasks include:

- 1) Update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling including the collection of TSS at select stations;
- 2) Conduct four sample collection rounds at forty-two stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by pond and sampling round and provided in spreadsheet format;
- 3) Prepare GIS based data maps showing station locations, pond system physical location, and other water quality data collected. The resource information for each pond surveyed will be presented on maps and posted on a web site; and
- 4) Prepare quarterly progress reports and a final water quality assessment report.

Cost: \$34,513

Funding: \$28,013– U.S. Environmental Protection Agency
\$ 6,500 – Martha's Vineyard Commission

Duration: 2005 – 2007 (Project Complete)

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2005-03

Project Title: Four Mile River Watershed Assessment

Investigator: Franklin Regional Council of Governments

Location: Connecticut River Watershed

Description: The goal of this project is to develop solutions to the erosion and sedimentation problems and to investigate new approaches to reducing nonpoint source pollution in the watershed. Franklin Regional Council of Governments will conduct a comprehensive assessment of the Four Mile Brook watershed including: a macroinvertebrate sampling program, a public education and outreach effort, and a watershed management plan which will prioritize watershed problems and provide recommendations for mitigation or restoration projects.

Specific project tasks include:

- 1) Inventory potential sources of nonpoint source pollution in the Four Mile River watershed. This inventory will include a pilot program to test a new EPA methodologies for watershed assessment – The Unified Stream Assessment and the Unified Subwatershed and Site Reconnaissance method.
- 2) Prepare a QAPP for a macroinvertebrate sampling program for EPA & DEP approval;
- 3) Analyze water quality data collected, and, inventory and prioritize sites for restoration and mitigation projects;
- 4) Develop a Watershed Management and Restoration Plan with specific recommendations for restoration and mitigation projects;
- 5) Prepare draft conceptual engineering designs for a priority project;
- 6) Convene an Advisory Committee with watershed stakeholders;
- 7) Implement a Public Participation and Outreach Program; and
- 8) Prepare quarterly and final project reports.

Cost: \$76,290

Funding: \$61,700 – U.S. Environmental Protection Agency
\$14,590 – Franklin Regional Council of Governments

Duration: 2005 - 2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2005-04

Project Title: Mount Hope Bay: Estuaries Water Quality Monitoring – Phase II

Investigator: Southeastern Regional Planning and Economic Development District

Location: Mt Hope Bay Watershed

Description: This project will continue the second of three years of water quality sampling planned for Mt. Hope Bay including fresh, estuarine, and marine waters. This project will provide water quality and flow data to support the Massachusetts Estuaries Program assessment of coastal waters including: Mt. Hope Bay, Taunton River, Three mile River, Segreganset River, Assonet River, and Quequechan River. Principle objectives will be to collect baseline data at established points, promote community involvement and awareness of water quality issues within the estuary.

Tasks to be completed include:

- 1) Revise the QAPP for the collection and analysis of water quality and flow data in the project area as needed;
- 2) Continue recruitment, training and support of volunteer sampling teams for in-bay and fresh water sampling locations;
- 3) Collect and analyze water quality and flow data from in-bay and fresh water sampling sites in accordance with approved QAPP including TSS data from open-water stations; and
- 4) Prepare final project report including a summary and analysis of all data collected by sub-watershed and sampling round.

Cost: \$74,420

Funding: \$74,420 – U.S. Environmental Protection Agency

Duration: 2005 - 2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2006-01

Project Title: Hamilton Reservoir Watershed Management

Investigator: Pioneer Valley Planning Commission

Location: French-Quinebaug Watershed

Description: The project will focus on assessment, management and BMP design solutions for road surfaces and stormwater runoff in the Hamilton Reservoir watershed to reduce sediment and nutrient loading to Hamilton Reservoir. The project will conduct a comprehensive assessment of unpaved road surfaces in the Hamilton Reservoir Watershed including:

- 1) prepare a GIS map and database of watershed roads including ownership status, Federal functional road classification, road surface type, landuse and hydrology;
- 2) conduct road surface assessments using the Road Manager 2000 program to identify sources of sediment loading and develop unpaved road surface management recommendations including budget projections;
- 3) conduct a Shoreline survey of the Massachusetts portion of the Hamilton Reservoir watershed and three tributaries: Leadmine, Steven's and Brown's Brook. Shoreline surveys will also be conducted on the Connecticut portion of the watershed by volunteers from Connecticut;
- 4) complete BMP design schematics at three to four high priority locations and obtain written permission from landowners to proceed with BMP installation;
- 5) review local bylaws and recommend local regulatory tools for watershed protection; and,
- 6) conduct a public outreach program and prepare final report.

Cost: \$32,110

Funding: \$ 29,810 – U.S. Environmental Protection Agency
\$ 2,300 – Pioneer Valley Planning Commission

Duration: 2006 - 2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2006-02

Project Title: Martha's Vineyard Coastal Pond Water Quality Assessment – Phase IV

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will continue the collection of water quality data to prepare six coastal salt ponds for entry into the Massachusetts Estuaries Project (MEP). Second year data will be collected for Katama Bay Pond and James Pond; and third year data for Oyster Pond. Water quality samples will be collected from seventeen stations during four sampling rounds from late July through mid September. Data will be incorporated into a final report and added to the MVC's web site.

Specific project tasks include:

- 1) Update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling including the collection of TSS at select stations;
- 2) Conduct four sample collection rounds at seventeen stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by pond and sampling round and provided in spreadsheet format;
- 3) Prepare GIS based data maps showing station locations, pond system physical location, and other water quality data collected. The resource information for each pond surveyed will be presented on maps and posted on a web site; and
- 4) Prepare quarterly progress reports and a final water quality assessment report.

Cost: \$20,361

Funding: \$ 13,498 – U.S. Environmental Protection Agency
\$ 6,863 – Martha's Vineyard Commission

Duration: 2006 - 2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2006-03

Project Title: Old Harbor and Scorton Creek Water Quality Sampling

Investigator: Town of Sandwich

Location: Cape Cod Watershed

Description: This project will continue with the collection of baseline water quality data required for entry into Massachusetts Estuary Program initiated by the Town of Sandwich in 2005. Water quality data will be collected during the summer months at 15 stations in Sandwich Harbor and 14 stations in Scorton Creek.

Specific project tasks include:

- 1) Update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling from the 2005 sampling effort including the collection of TSS at select stations;
- 2) Conduct up to two training sessions for sampling volunteers;
- 3) Assemble sampling kits as specified in the SAP for each Sampling team;
- 4) Conduct six sample collection rounds at twenty-nine stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by Harbor and sampling round and provided in spreadsheet format;
- 5) Prepare GIS based data maps showing station locations, Harbor system physical location, and water quality data collected; and
- 6) Prepare quarterly progress reports and a final water quality assessment report.

Cost: \$21,400

Funding: \$21,400 – U.S. Environmental Protection Agency

Duration: 2006 - 2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2006-04

Project Title: Mount Hope Bay: Estuaries Water Quality Monitoring – Phase III

Investigator: Southeastern Regional Planning and Economic Development District

Location: Mt Hope Bay Watershed

Description: This project will complete three years of water quality sampling for Mt. Hope Bay including fresh, estuarine, and marine waters. The project will provide water quality and flow data to support the Massachusetts Estuaries Program assessment of coastal waters including: Mt. Hope Bay, Taunton River, Three mile River, Segreganset River, Assonet River, and Quequechan River. Three new freshwater stream gauging and water quality monitoring stations will be established on Lewins Brook and Heath Brook/Kickamuit River. Principle objectives are to collect baseline data at established points and to promote community involvement and awareness of water quality issues within the estuary.

Tasks to be completed include:

- 1) Revise the QAPP for the collection and analysis of water quality and flow data in the project area as needed;
- 2) Continue recruitment, training and support of volunteer sampling teams for in-bay and fresh water sampling locations;
- 3) Collect and analyze water quality and flow data from in-bay and fresh water sampling sites in accordance with approved QAPP including TSS data from open-water stations; and
- 4) Prepare final project report for the three-year Water Quality Sampling Program including a summary and analysis of all data collected by sub-watershed and sampling round.

Cost: \$59,920

Funding: \$59,920 – U.S. Environmental Protection Agency

Duration: 2006 - 2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2007-01

Project Title: Martha's Vineyard Coastal Pond Water Quality Assessment – Phase V

Investigator: Martha's Vineyard Commission

Location: Islands Watershed

Description: This project will continue the collection of water quality data to prepare six coastal salt ponds for entry into the Massachusetts Estuaries Project (MEP). Third year data will be collected for Katama Bay Pond and James Pond. Additional data will be collected from both Oyster Pond and Tisbury Great Pond due to the discontinuous tidal nature of these systems. Water quality samples will be collected from twenty-five stations during four sampling rounds from late July through mid September. Data will be incorporated into a final report and added to the MVC's web site.

Specific project tasks include:

- 1) Update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling including the collection of TSS at select stations;
- 2) Conduct four sample collection rounds at twenty-five stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by pond and sampling round and provided in spreadsheet format;
- 3) Prepare GIS based data maps showing station locations, pond system physical location, and other water quality data collected. The resource information for each pond surveyed will be presented on maps and posted on a web site; and
- 4) Prepare quarterly progress reports and a final water quality assessment report.

Cost: \$24,744

Funding: \$ 20,119 – U.S. Environmental Protection Agency
\$ 4,625 – Martha's Vineyard Commission

Duration: 2007 - 2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2007-02

Project Title: Old Harbor and Scorton Creek Water Quality Sampling

Investigator: Town of Sandwich

Location: Cape Cod Watershed

Description: This project will complete the third year of baseline water quality data collection required for entry into Massachusetts Estuary Program. Water quality data will be collected during the summer months at 15 stations in Sandwich Harbor and 14 stations in Scorton Creek.

Specific project tasks include:

- 1) Update existing Sampling and Analysis Plan (SAP) to reflect any changes in the sampling locations, stations, sample collection and processing methodology, and equipment and handling from previous sampling efforts including the collection of TSS at select stations;
- 2) Conduct up to two training sessions for sampling volunteers;
- 3) Assemble sampling kits as specified in the SAP for each Sampling team;
- 4) Conduct six sample collection rounds at twenty-nine stations and analyze the water quality samples in accordance with the updated SAP. Water quality data will be summarized by Harbor and sampling round and provided in spreadsheet format;
- 5) Prepare GIS based data maps showing station locations, Harbor system physical location, and water quality data collected; and
- 6) Prepare quarterly progress reports and a final water quality assessment report that summarizes the three years of data collection.

Cost: \$21,100

Funding: \$ 21,100 – U.S. Environmental Protection Agency

Duration: 2007 - 2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2007-03

Project Title: Provincetown Harbor & Pamet Harbor Water Quality Assessment

Investigator: Town of Provincetown

Location: Cape Cod Watershed

Description: This project will collect the baseline water quality data necessary to prepare coastal water bodies in Provincetown and Truro for entry into the Massachusetts Estuaries Project (MEP). The Towns of Provincetown and Truro, in concert with UMASS School of Marine Science and Technology (SMAST), will prepare a Sampling and Analysis Plan and collect Year one data for Hatches Harbor, Provincetown Harbor, East Harbor Lagoon, and Pamet Harbor. Water quality samples will be collected from a minimum of thirty-nine stations during six sampling rounds from June through September.

Specific activities to be conducted by the Contractor during this project include:

- 1) Prepare a Sampling and Analysis Plan (SAP) including field survey station locations, GPS coordinates, and GIS maps of sample locations following existing Massachusetts Estuaries Program (MEP) Quality Assurance Project Plan (QAPP) to insure standard survey and water quality data collection methods;
- 2) Collect water quality samples from thirty-nine stations during six sampling rounds; and
- 3) Prepare final data summary.

Cost: \$52,730

Funding: \$ 47,730 – U.S. Environmental Protection Agency
\$ 5,000 – Town of Provincetown

Duration: 2007 - 2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2007-04

Project Title: Barrett Pond Watershed Assessment

Investigator: City of Leominster

Location: Nashua Watershed

Description: This project will conduct an assessment of nonpoint pollution sources and develop solutions to improve water quality and restore recreational uses of Barrett Pond.

Specific activities to be conducted by the City during this project include:

- 1) Assess land uses in the watershed to identify nonpoint pollution sources,
- 2) Conduct water quality and biological assessments to identify pond management techniques that will reduce turbidity and algal blooms,
- 3) Develop preliminary designs, estimated costs, and identify locations to install Best Management Practices,
- 4) Prepare specific recommendations for stormwater controls and pond management measures,
- 5) Conduct a community outreach and education program, and
- 6) Prepare a final project report.

Cost: \$45,300

Funding: \$33,300 – U.S. Environmental Protection Agency
\$12,000 – City of Leominster

Duration: 2007 - 2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDICATIVE PROJECT SUMMARIES**

SECTION 604b PROJECT 2007-05

Project Title: Green Street Demonstration Project

Investigator: City of Boston

Location: Boston Harbor Watershed

Description: This project will assess the potential stormwater management and recharge benefits of Green Streets by implementing a pilot Green Street project in the City of Boston. The results will help the City of Boston, as well as the EOEEA and the Department of Environmental Protection (DEP), understand more fully the role that Green Streets could play in stormwater management and watershed protection in this region. The Contractor will work in partnership with the Charles River Watershed Association to complete the project. This project will provide an opportunity to integrate planning, design, development and education about ultra-urban Low Impact Development designs and innovative stormwater retrofits across agencies.

Specific tasks to be completed include:

- 1) Assess existing conditions at an urban location,
- 2) Develop Source Loading and Management Model estimates of surface water runoff and nutrient loading for the selected site,
- 3) Evaluate Low Impact Development (LID) Best Management Practices (BMP) Opportunities,
- 4) Conduct scenario modeling for various BMP's,
- 5) Select BMP options Streetscape Concept,
- 6) Conduct a Public Outreach program, and
- 7) Prepare a final project report.

Cost: \$44,986

Funding: \$25,406 – U.S. Environmental Protection Agency
\$19,580 – City of Boston

Duration: 2007 - 2009

Appendix Table A
604b Projects from FFY91 to FFY97 by Watershed

Boston Harbor

Project Number

91-06/604

94-06/604

Project Title

Charles River Southwest Regional Water Supply Protection Planning Project

Tri-Town Watershed Protection Implementation Project

Cape Cod

Project Number

91-01/604

91-02/604

92-01/604

94-01/604

97-02/604

Project Title

Control of Hazardous Materials Users to Protect Groundwater
Quality on Cape Cod

Monomoy Lens Regional Water Protection Project

Cape Cod Small Volume Well Prioritization Project

Sagamore Lens Groundwater Protection Project

Priority Land Acquisition Assessment for Cape Cod: Protecting Suitable
Land for Future Water Supply Needs

Charles

Project Number

91-06/604

Project Title

Charles River Southwest Regional Water Supply Protection Planning Project

Chicopee

Project Number

91-03/604

91-04/604

92-03/604

92-08/604

93-02/604

94-02/604

94-04/604

96-03/604

Project Title

Quaboag River Water Supply Protection Project

Franklin County Water Resources Protection Planning Project

Franklin County Water Resources Protection Planning Project

Pioneer Valley Water Resources Protection Planning Project

Franklin County Water Quality Improvement Program

Small Public Water System Collaborative Project

Public Water Supply Technical Assistance, Watershed Inspection
Implementation, and ISTEA Planning Project

An Assessment of Urban Stream Restoration: Tannery and Poor Brooks

Concord

Project Number

93-04/604

Project Title

Sudbury-Assabet-Concord (SuAsCo) River Basins Water Supply Protection

Connecticut

Project Number

96-06/604

97-01/604

Project Title

Assessment and Evaluation of Stormwater Source Reduction Practices on
Combined Sewer Overflows

Stream Classification and Assessment Project

Deerfield

Project Number

92-09/604

93-01/604

Project Title

Small Public Water Supplies Planning and Protection Project

Technical Assistance to Community and NonTransient
NonCommunity (NTNC) Water Suppliers in Preparing Source

97-01/604	Protection Plans Stream Classification and Assessment Project
Farmington	
Project Number	Project Title
95-02/604	Farmington River Watershed Nonpoint Source Assessment Project
Housatonic	
Project Number	Project Title
92-09/604	Small Public Water Supplies Planning and Protection Project
93-01/604	Technical Assistance to Community and NonTransient NonCommunity (NTNC) Water Suppliers in Preparing Source Protection Plans
96-05/604	Housatonic River Watershed Nonpoint Source Pollution Assessment Project
Hoosic	
Project Number	Project Title
92-09/604	Small Public Water Supplies Planning and Protection Project,
93-01/604	Technical Assistance to Community and NonTransient NonCommunity (NTNC) Water Suppliers in Preparing Source Protection Plans
96-01/604	Hoosic River Nonpoint Source Pollution Assessment Project
Ipswich	
Project Number	Project Title
92-06/604	Ipswich and North Coastal River Basins Water Resources Protection Planning Project
95-04/604	Nonpoint Source Assessment in the Ipswich River Watershed
Islands	
Project Number	Project Title
92-04/604	Martha's Vineyard Water Resources Protection Planning Project
96-04/604	Edgartown Great Pond: Existing and Projected Nitrogen Load
Merrimack	
Project Number	Project Title
91-05/604	Merrimack River Water Resources Protection Project
91-08/604	Northern Middlesex County Water Resources Protection Project
92-05/604	Merrimack Valley Regional Water Supply Protection Project
93-03/604	Development and Implementation of Local Floor Drain Regulations in the Merrimack and Parker River Basins
Millers	
Project Number	Project Title
91-07/604	Upper Naukeag Lake Watershed Protection Study
92-07/604	Montachusett Water Resources Protection Planning Project
Narragansett	
Project Number	Project Title
94-05/604	A Regional Approach to Water Resources Protection and Protecting a Future Potential Water Supply

Nashua	
Project Number	Project Title
92-02/604	Fitchburg Watershed Planning Project
North Coastal	
Project Number	Project Title
92-06/604	Ipswich and North Coastal River Basins Water Resources Protection Planning Project
94-03/604	Cape Ann Emergency Water Supply Plan
96-02/604	Assessment of On-site Sewage Related Pollution in Gloucester Waters
Parker	
Project Number	Project Title
93-03/604	Development and Implementation of Local Floor Drain Regulations in the Merrimack and Parker Basins
South Coastal	
Project Number	Project Title
95-03/604	South Shore Nonpoint Source Management Plan
Taunton	
Project Number	Project Title
91-09/604	Upper Taunton River Basin Water Supply Protection and Development Project
91-11/604	Mattapoisett River Water Supply Protection Project
92-10/604	Taunton River Basin Water Resources Planning Project
93-05/604	Upper Taunton River Basin Water Supply/Contingency Planning Program
93-07/604	Technical Assistance to the Palmer River Watershed, Mattapoisett River Valley Water Supply Protection Advisory Committee and the Taunton River Basin Needs Study
94-05/604	A Regional Approach to Water Resources Protection and Protecting a Future Potential Water Supply
Westfield	
Project Number	Project Title
91-10/604	Pioneer Valley Water Resource Protection Project
92-09/604	Small Public Water Supplies Planning and Protection Project
93-06/604	Pioneer Valley Regional Water Supply Protection Project
95-01/604	Nonpoint Source Assessment in the Westfield River Watershed

Appendix Table B
604b Projects from FFY91 to FFY97 by Fiscal Year

FFY 91

Project Number	Project Title
91-01/604	Control of Hazardous Materials Users to Protect Groundwater Quality on Cape Cod
91-02/604	Monomoy Lens Regional Water Protection Project
91-03/604	Quaboag River Water Supply Protection Project
91-04/604	Franklin County Water Resources Protection Planning Project
91-05/604	Merrimack River Water Resources Protection Project
91-06/604	Charles River Southwest Regional Water Supply Protection Planning Project
91-07/604	Upper Naukeag Lake Watershed Protection Study
91-08/604	Northern Middlesex County Water Resources Protection Project
91-09/604	Upper Taunton River Basin Water Supply Protection and Development Project
91-10/604	Pioneer Valley Water Resource Protection Project
91-11/604	Mattapoisett River Water Supply Protection Project

FFY 92

Project Number	Project Title
92-01/604	Cape Cod Small Volume Well Prioritization Project
92-02/604	Fitchburg Watershed Planning Project
92-03/604	Franklin County Water Resources Protection Planning Project
92-04/604	Martha's Vineyard Water Resources Protection Planning Project
92-05/604	Merrimack Valley Regional Water Supply Protection Project
92-06/604	Ipswich and North Coastal River Basins Water Resources Protection Planning Project
92-07/604	Montachusett Water Resources Protection Planning Project
92-08/604	Pioneer Valley Water Resources Protection Planning Project
92-09/604	Small Public Water Supplies Planning and Protection Project
92-10/604	Taunton River Basin Water Resources Planning Project

FFY 93

Project Number	Project Title
93-01/604	Technical Assistance to Community and NonTransient NonCommunity (NTNC) Water Suppliers in Preparing Source Protection Plans
93-02/604	Franklin County Water Quality Improvement Program
93-03/604	Development and Implementation of Local Floor Drain Regulations in the Merrimack and Parker River Basins
93-04/604	Sudbury-Assabet-Concord (SuAsCo) River Basins Water Supply Protection Project
93-05/604	Upper Taunton River Basin Water Supply/Contingency Planning Program
93-06/604	Pioneer Valley Regional Water Supply Protection Project
93-07/604	Technical Assistance to the Palmer River Watershed, Mattapoisett River Valley Water Supply Protection Advisory Committee and the Taunton River Basin Needs Study

FFY 94**Project Number****Project Title**

94-01/604	Sagamore Lens Groundwater Protection Project
94-02/604	Small Public Water System Collaborative Project
94-03/604	Cape Ann Emergency Water Supply Plan
94-04/604	Public Water Supply Technical Assistance/Watershed Inspection Implementation and ISTEA Planning Project
94-05/604	A Regional Approach to Water Resources Protection and Protecting a Future Potential Water Supply
94-06/604	Tri-Town Watershed Protection Implementation Project

FFY95**Project Number****Project Title**

95-01/604	Nonpoint Source Assessment in the Westfield River Watershed
95-02/604	Farmington River Watershed Nonpoint Source Assessment Project
95-03/604	South Shore Nonpoint Source Management Plan
95-04/604	Nonpoint Source Assessment in the Ipswich River Watershed

FFY 96**Project Number****Project Title**

96-01/604	Hoosic River Nonpoint Source Pollution assessment project
96-02/604	Assessment of On-site Sewage Related Pollution in Gloucester Waters
96-03/604	An Assessment of Urban Stream Restoration: Tannery and Poor Brooks
96-04/604	Edgartown Great Pond: Existing and Projected Nitrogen Load
96-05/604	Housatonic River Watershed Nonpoint Source Pollution Assessment Project
96-06/604	Assessment and Evaluation of Stormwater Source Reduction Practices on Combined Sewer Overflows

FFY 97**Project Number****Project Title**

97-01/604	Stream Classification and Assessment Project
97-02/604	Priority Land Acquisition Assessment for Cape Cod: Protecting Suitable Land for Future Water Supply Needs

